

Claims

1. A method of making a formed, dried lignocellulose fiber material, said method comprising
 - (a) providing an aqueous lignocellulose fiber pulp slurry having an effective consistency;
 - (b) de-watering said slurry to provide a de-watered material at an effective de-watering rate under an effective pressure to prevent or reduce the formation of fissures and voids within said material; and
 - (c) drying an effective amount of said de-watered material at an effective temperature and period of time to provide said formed, dried lignocellulose fiber material of a shape having a thickness of at least 5mm.
2. A method of making a formed, dried lignocellulose fiber material as defined in claim 1 wherein said formed, dried lignocellulose fiber material is minimally flawed.
3. A method as defined in claim 2 wherein said formed, dried lignocellulose fiber material is essentially fissure-free.
4. A method as defined in claim 1 wherein said lignocellulose fiber material has an average fiber length of less than 1.0cm.
5. A method as defined in claim 4 wherein said lignocellulose fiber material is a hardwood and said average fiber length is selected from about 0.5-1.0mm.
6. A method as defined in claim 4 wherein said lignocellulose fiber material is a softwood and said average fiber length is selected from about 1.0-4.0mm.
7. A method as defined in claim 4 wherein said lignocellulose fiber material is non-wood and said average fiber length is selected from about 0.5-10mm.
8. A method as defined in claim 1 wherein said aqueous lignocellulose fiber pulp slurry of step (a) has a fiber consistency of between 0.1 – 10% W/W.
9. A method as defined in claim 1 wherein said de-watered material produced by step (b) has a dry bulk density of between 0.1 – 0.9 g/cm³.

10. A method as defined in claim 1 wherein said de-watering step (b) is carried out by suitable de-watering means to produce said de-watered material of a suitable form.
- 5 11. A method as defined in claim 9 wherein said form is of a shape having a thickness of at least 2 cm.
12. A method as defined in claim 9 wherein said de-watering means comprises compression means.
13. A method as defined in claim 12 wherein said compression means exerts a compressive force of about 10-100 psi.
- 10 14. A method as defined in claim 1 wherein said lignocellulose fiber pulp is selected from the group consisting of bleached, unbleached, dried, undried, refined, unrefined, kraft, sulfite, mechanical, recycled and virgin wood and non-wood fiber pulps.
- 15 15. A method as defined in claim 1 wherein said drying step (c) comprises air drying.
16. A method as defined in claim 1 wherein said drying step (c) is carried out at a temperature and over a period of time to remove water to produce said de-watered material having a water content of no more than 5% W/W water.
17. A method as defined in claim 16 wherein said drying step (c) is carried out at a temperature and over a period of time to remove water to produce said de-watered material having a water content of no more than 3% W/W. ~
- 20 18. A method of making a lignocellulose fiber-resin composite material comprising the steps defined in claim 1 and further comprising the steps of
 - (d) impregnating said dried formed fiber material with a liquid thermoset resin under an effective pressure for an effective period of time to effect
 - 25 impregnation of said resin in said dried formed fiber material at a desired rate and to a desired degree to produce a resin-treated material; and
 - (e) curing said resin in said resin-treated material to produce said composite material.
- 30 19. A method as defined in claim 18 wherein said impregnation step (d) is carried out at a temperature of 5 – 25°C.

20. A method as defined in claim 18 further comprising form-pressing said resin-treated material prior to curing step (e).
21. A method as defined in claim 20 wherein said form-pressing step comprising extruding said material or sandwiching said material.
- 5 22. A method as defined in claim 18 wherein said curing step (e) is initially carried out at an effective temperature of below about 100°C.
23. A formed, dried lignocellulose fiber material when made by a process as defined in claim 1.
- 10 24. A formed dried lignocellulose fiber material as defined in claim 23, which is essentially fissure-free.
25. A formed, lignocellulose fiber-resin composite material when made by a process as defined in claim 18.
26. A formed lignocellulose fiber composite material as defined in claim 25, which is essentially fissure-free.